



COMPARISON OF PERSONALITY PROFILE BETWEEN PATIENTS WITH ALCOHOL DEPENDENCE AND HEALTHY CONTROL USING TEMPERAMENT AND CHARACTER INVENTORY.

Psychiatry

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ABSTRACT

Background: Alcohol abuse and Alcohol related issue put a huge burden on society these days. Certain personality types are increasingly inclined for substance use. Certain dimensions of childhood temperament were found to be predictors of later alcohol problems, like novelty-seeking, harm avoidance and reward dependence. A psychological construct comprising the feeling of powerless, meaningless, isolation and self-estrangement, is linked to alcoholism **Method:** total 30 cases of alcohol dependence (ADS) were selected as per the inclusion and exclusion criteria laid down for the study, along with 30 healthy controls with age sex matched. TCI was administered Data was gathered and broke down utilizing SPSS. **Result:** Significant difference between scores of Novelty seeking and Self Directedness noted, in comparison to normal control. **Conclusion:** Patient with alcohol dependence on temperament and character inventory scores found to be higher in Novelty seeking and low in self-directedness as compared to healthy controls.

KEYWORDS

TCI; ADS; Novelty Seeking; Self Directedness.

INTRODUCTION:

Three different dimensions of childhood temperament were found to be predictors of later alcohol problems. These dimensions were novelty-seeking, harm avoidance and reward dependence [1]. A psychological construct comprising the feeling of powerless, meaningless, isolation and self-estrangement, is linked to alcoholism [2], particularly in early onset Indian alcohol dependent whereas the late-onset alcohol dependent (>25 years) were anxiety-prone and guilt-ridden, and had less alcohol-related problems [3].

Compared with controls, alcohol dependent scored significantly higher on all indicators of negative emotionality [4]. Low novelty seeking and high self directedness scores also recorded in alcohol-dependent patients in comparison to healthy controls [5].

The substance-related outcome that confirmed Cloninger's theory [1] was the number of Substance Use Disorder symptoms, where high Novelty Seeking, and low Harm Avoidance, Reward Dependence, and Persistence significantly predicted more abuse and dependence symptoms [6]. Novelty seeking was the trait most commonly associated with increased involvement with alcohol, cannabis, and cocaine intake related activities [7].

Research found that the alcohol-addicted subjects achieved lower scores in the Self-Directedness character dimension and higher scores in the Novelty Seeking, Harm Avoidance, and Self-Transcendence dimensions. The ADS scores showed a positive correlation with Novelty Seeking and Self-Transcendence [8].

Correlation of TCI profile has been found to have prognostic indicator in alcohol dependent cases. The whole group scored highly in novelty seeking (NS) and harm avoidance (HA) and produced low scores in self-directedness (SD), these last traits are considered prominent. The drop-out group scored significantly higher in novelty seeking (NS) than the follow-up group [9]. Similar Findings were also observed that People with higher scores on Reward Dependency (RD), Persistence

(P), Cooperation (CO) and Self transcendence (ST) have a better prognosis while people with higher scores on Search for Novelty (SN) and Avoidance of Damage (AD) have a worst prognosis in alcohol dependent cases [10].

MATERIALS AND METHOD:

The study was conducted at the Department of Psychiatry, School of Medical Sciences and Research, Sharda University, Greater Noida, India. School of Medical Sciences and Research is a tertiary referral centre for psychiatric patients with Aim of Comparing Temperament and Character Profile between patients of alcohol dependence and healthy controls.

This was a cross sectional comparative hospital based study. The subjects were recruited by convenient sampling technique. The study included 30 male inpatients of alcohol dependence syndrome according to ICD – 10 – DCR19 in the age group between 21-60 yrs after giving informed consent, and fulfilling inclusion and exclusion criteria along with 30 normal control fulfilling inclusion and exclusion criteria laid down for the study.

Patients were recruited after a standard intake procedure. Recruitment was based on diagnoses assessed during the intake procedure (by psychiatrists according to DSM-IV-TR criteria). The collection of data took place after a period of Detoxification of the patient; in a single session by using Socio demographic data sheet and temperament and character inventory (TCI). TCI consists of 7 main scales and 25 subscales. The TCI can be filled in by persons from 15 years of age. The 240 questions of the TCI are answered with "CORRECT" or "INCORRECT". The TCI can be filled in approximately in 1 hour 30 minutes. Healthy controls were recruited using convenience sampling. One of the members of the research team approached potential participants and asked them to volunteer, if they met criteria for inclusion. The study protocol has been approved by the Ethical committee of research Sharda University. Data was collected and broke down by using SPSS 25

RESULTS:

Table 1 illustrates the socio-demographic details of the population under study. Significant difference was found between the two groups with respect to family history. More number of patients of alcohol dependence were found to be having positive family history of substance use disorder ($p=.008$) as compared with healthy controls.

Table 2 depicts the comparison of Temperament dimension among the two groups. There was significant difference with respect to Novelty Seeking ($p=.031$) between the two groups. However there was no significant difference in other dimensions of temperament such as Harm Avoidance, Reward Dependence and Persistence.

Table 3 shows the comparison of Character dimension among the two groups. There was significant difference with respect to Self Directedness ($p=.048$) among the two groups and no difference was found in other dimensions of Character profile such as Cooperativeness and Self Transcendence.

Table 1: Socio-demographic characteristics of patients with Alcohol Dependence Syndrome and Normal Control

Variable		Control	Patient	dt	Sig.
Marital Status	Unmarried	11	10	1	.787
	Married	19	20		
Religion	Hindu	22	21	2	.837
	Muslim	1	2		
	Christian	7	7		
Education	Primary	3	4	3	.542
	Secondary	13	10		
	Graduate	11	15		
	Postgraduate	3	1		
Occupation	Unemployed	5	6	1	.739
	Employed	25	24		
SES	Lower	3	4	1	.688
	Middle	27	26		
Family Type	Nuclear	19	17	1	.598
	Joint	11	13		
Family History of Substance Use	Positive	17	7	1	.008
	Negative	13	23		
Legal	Positive	0	0	1	.
	Negative	30	30		

*Significance at $p<.05$ (2-tailed)

Table 2 : Comparison of mean scores of Temperament dimension between patients with alcohol dependence and normal control.

		Sum of Squares	df	Mean Square	F	Sig.
NS	Between Groups	146.954	1	146.954	4.875	.031
	Within Groups	1748.283	58	30.143		
	Total	1895.236	59			
HA	Between Groups	.963	1	.963	.027	.870
	Within Groups	2079.657	58	35.856		
	Total	2080.619	59			
RD	Between Groups	94.000	1	94.000	3.839	.055
	Within Groups	1420.182	58	24.486		
	Total	1514.182	59			
P	Between Groups	150.733	1	150.733	2.008	.162
	Within Groups	4354.808	58	75.083		
	Total	4505.542	59			

*Significance at $p<.05$ (2-tailed)

Table 3: Comparison of mean scores of Character dimension between patients with alcohol dependence and normal control.

		Sum of Squares	df	Mean Square	F	Sig.
SD	Between Groups	213.948	1	213.948	4.085	.048
	Within Groups	3037.922	58	52.378		
	Total	3251.870	59			
C	Between Groups	51.708	1	51.708	2.020	.161
	Within Groups	1484.780	58	25.600		
	Total	1536.488	59			
ST	Between Groups	9.520	1	9.520	.151	.699
	Within Groups	3662.346	58	63.144		
	Total	3671.866	59			

*Significance at $p<.05$ (2-tailed)

DISCUSSION:

This was a cross sectional study in which subjects selected by convenient sampling were assessed. 30 adult male patient aged between 21-60 years fulfilling criteria for alcohol dependence according to ICD – 10 – DCR[11] and 30 adult male patient aged between 21-60 years fulfilling criteria for control, constituted the sample. This sample size was comparable to the study by Varma & Sengupta, in 2000 took 73 alcohol dependent males [12], 53 male alcoholic subjects [13], 57 male subjects and 15 controls [14] and 73 patients [15]. Matteo Pacini conducted research taking 55 alcoholics without psychiatric co morbidity to find out affective temperament [16]. Fabien Gierski 2017 collected data from 100 binge drinkers and studied their personality profile [17]. Seyed Ghasem Seyed Hashemi 2019 collected data from 58 male and 52 females [18]. Hence the sample size was adequate for making comparison with these studies.

In this study more patients of alcohol dependence have positive family history of alcohol use disorder as compared to normal controls. Studies conducted in field of substance use disorder have also reported similar association. Study reported odds of 45% if second and third degree relatives have history of alcohol use disorder and it increases up to 86% if first degree relatives have history of alcohol use disorder [19]. Researchers have also shown strong association with family history of alcohol use disorder and this association grows in successive generations and more strongly associated with female population of successive generation [20].

This has been reported that positive family history for any substance use disorder like cannabis and marijuana has robust association with children taking up alcohol before the age of 15 yrs [21], it has also been noted that family history of problem drinking, concurrent smoking, and concurrent marijuana use were associated with greater odds of problem drinking behaviour in successive generations [22].

Severity of problem drinking behaviour like binge drinking pattern is observed more in successive generations with positive family history for Substance use [23]. These findings are consistent with finding of current study reporting more Alcohol dependent patient have positive family history as compared to control group.

Novelty seeking reflects a heritable bias in the initiation or activation of appetitive approach in response to novelty, extravagance in approach to cues of reward, active avoidance of conditioned signals of punishment and frustration, and skilled escape from unconditioned punishment. Individuals high in novelty seeking are quick-tempered, curious, easily bored, impulsive, extravagant, and disorderly. Adaptive advantages of high novelty seeking are enthusiastic explorations of new and unfamiliar stimuli, potentially leading to originality, discoveries, and reward. The disadvantages are frequent and easy boredom, excessive impulsivity and angry outbursts, potential fickleness in relationships, and impressionism in efforts [24].

Self-directedness quantifies the extent to which an individual is responsible, reliable, resourceful, goal-oriented, and self-confident. The most advantageous summary feature of self-directed individuals is that they are realistic and effective; that is, they are able to adapt their behaviour in accord with individually chosen, voluntary goals based on a realistic assessment of facts. Individuals low in self-directedness are blaming, helpless, irresponsible, unreliable, reactive, and unable to define, set, and pursue meaningful internal goals, which is often disadvantageous to the individual [24].

Impulsiveness and exploratory excitability were associated with increased positive and negative subjective drug effects, and the analyses supported a significant indirect pathway from impulsiveness to a more frequent use of substance via positive subjective effects. These findings suggest that impulsiveness-like aspects of the novelty seeking construct may represent a useful phenotypic marker for early substance use proneness that potentially seems to predispose to increased alcohol use throughout life [25,26]. Severity of impulsivity and dimensions of impulsivity were higher in alcohol-dependent inpatients than in healthy controls. Impulsivity was negatively correlated with reward dependence, persistence, self-directedness and cooperativeness. High novelty seeking, harm avoidance and low reward dependence predicted impulsivity and substance use behaviour[27]. Novelty Seeking appears to be a general risk factor for

drug addiction [28].

Higher NS scores were implicated with a higher incidence of all forms of antisocial behaviour. Assault, theft, property damage and dishonesty before age 16. Alcohol and substance use disorders mediate the association between NS and antisocial behaviours in early adulthood. NS may be a useful endophenotype for investigating the causation of externalizing behaviours [29].

Pathological pattern of drinking behaviour like binge drinking recorded in both male and female binge drinkers those who have high levels of novelty seeking, and low levels of persistence and self-directedness. High Novelty seeking and low Self directedness is implicated in other substance use disorder like cannabis alcohol cocaine etc

Novelty seeking was the trait most associated with increased involvement with alcohol, cannabis, and cocaine. The Self-directedness was reduced in dependents of all drug classes. Novelty seeking was associated with increased involvement with all drugs studied in this sample, although to a lesser extent with benzodiazepines and hallucinogens. The temperament and character profile for benzodiazepine use was different from that of other drugs due to the relationship with higher harm avoidance and self-transcendence and lower self-directedness [30,31].

One of the limitations of the current study was its small sample size, and patients selected from a tertiary care centre might not be representative of overall population of patient with alcohol dependence syndrome. Only male patients were taken so generalization across gender is not possible. Drug screening using urine and blood sample might had been better then to rely only on patients self-reporting.

CONCLUSION:

Patient with alcohol dependence on temperament and character inventory scores found to be higher in Novelty seeking and low in self-directedness as compared to healthy controls.

REFERENCES:

1. Cloninger CR, Sigvardsson S, Bohman M. Childhood personality predicts alcohol abuse in young adults Alcoholism. Clinical and Experimental Research 1988;12(4):494-505.
2. Gupta N, Basu D. The ongoing quest for sub-typing substance abuse : current status. Indian Journal of Psychiatry 1999;41(4):289-99.
3. Varma VK, Basu D, Malhotra A, Sharma A, Mattoo SK. Correlates of early and late onset alcohol dependence. Addictive Behaviors 1994;19:609-19.
4. McGue M, Iacono WG, Legrand L, Malone S, Elkins I. Origins and consequences of age of first drink: II. Familial risk and heritability. Alcoholism Clinical Experimental Research 2001;25:1166-73.
5. Anghelescu I, Klawe C, Singer P, Fehr C, Hiemke C, Quante A et al. Low novelty seeking and high self directedness scores in alcohol-dependent patients without comorbid psychiatric disorders homozygous for the A10 allele of the dopamine transporter gene. World Journal of Biological Psychiatry 2010 Mar;11(2):382-9.
6. Hartman C, Hopfer C, Corley R, Hewitt J, Stallings M. Using Cloninger's Temperament Scales to Predict Substance-Related Behaviours in Adolescents: A Prospective Longitudinal Study American Journal on Addiction 2013 May-Jun; 22(3): 10.1111/j.1521-0391.2012.12010.
7. Schneider RJ, Gustavo L, Ottoni HW, Carvalho D, Elisabetsky E, Lara DR. Temperament and character traits associated with the use of alcohol, cannabis, cocaine, benzodiazepines, and hallucinogens: evidence from a large Brazilian web survey. Revista Brasileira de Psiquiatria vol.37 no.1 São Paulo Jan./Mar. 2015 Epub Jan 20, 2015.
8. Smolejova E, Heretik ml A, Hajduk M. Specifics of temperament and character of patients dependent on alcohol. Addictology 2016;16(1):8-17.
9. Avila JJ, Sanchez BM, Alvarez A, Lopez VA, Recio PJ, Rodriguez RM, et al. Predictive Capacity of Cloninger's temperament and character inventory (TCI-R) in alcohol use disorder outcomes. Addictions 2016 June 14;28(3):136-43.
10. Alvarez A, Avila JJ, Palao DJ, Montejo AL. Influence of Personality Traits on the Severity of Alcohol Use Disorders. Journal of Clinical Medicine 2018;7(6):127-37.
11. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines. Geneva: World Health Organization. 2004.
12. Varma S, Sengupta S. Type a - type B clustering of alcoholics - a preliminary report from an Indian hospital. Indian J Psychiatry. 2000 Oct;42(4):363-9.
13. Sullivan JL, Baenzler JC, Wagner DL. Platelet MAO in subtypes of alcoholism. Biological Psychiatry. 1990;27:911-22.
14. Limson R, Goldman D, Roy A. Personality and cerebrospinal fluid monoamine metabolites in alcoholics and controls. Archives of General Psychiatry. 1991; 48: 437-41.
15. Lykouras L, Moussas G, Botsis A. Examination of type I/type II alcoholism typology in a Greek hospital treatment population. European Psychiatry. 2004;19(4):214-18.
16. Pacini M, Marenmani I, Vitali M, Santini P, Romeo M, Ceccanti M. Affective temperaments in alcoholic patients. Alcohol. 2009 Aug;43(5):397-404.
17. Gierski F, Benzerouf F, De Wever E, Duka T, Kaladjian A, Quaglini V et al. Cloninger's Temperament and Character Dimensions of Personality and Binge Drinking Among College Students. Alcohol Clin Exp Res. 2017 Nov;41(11):1970-1979.
18. Hashemi SGS, Khoei EM, Hosseinnazhad S, Mousavi M, Dadashzadeh S, Mostafaloo T et al. Personality traits and substance use disorders: Comparative study with drug user and non-drug user population, Personality and Individual Differences. 2019;148:50-56.
19. Dawson DA, Harford TC, Grant BF. Family history as a predictor of alcohol dependence. Alcohol Clin Exp Res. 1992 Jun;16(3):572-5.
20. Chartier KG, Thomas NS, Kendler KS. Interrelationship between family history of alcoholism and generational status in the prediction of alcohol dependence in US Hispanics. Psychol Med. 2017 Jan;47(1):137-147. 21. Henry KL. Fathers' Alcohol and Cannabis Use Disorder and Early Onset of Drug Use by Their Children. J Stud Alcohol Drugs. 2017 May;78(3):458-462.
22. Gilbert PA, Marzell M. characterizing a Hidden Group of At-Risk Drinkers: Epidemiological Profiles of Alcohol-Use Disorder Diagnostic Orphans. Subst Use Misuse. 2018 Jul 3;53(8):1239-1251.
23. Gowin JL, Sloan ME, Stangl BL, Vatsalya V, Ramchandani VA. Vulnerability for Alcohol Use Disorder and Rate of Alcohol Consumption. Am J Psychiatry. 2017 Nov 1;174(11):1094-1101.
24. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. Arch Gen Psychiatry. 1993 Dec;50(12):975-90.
25. Bidwell LC, Knopik VS, Audrain-McGovern J, Glynn TR, Spillane NS, Ray LA et al. Novelty Seeking as a Phenotypic Marker of adolescent Substance Use. Subst Abuse. 2015 Jun 17;9(Suppl 1):1-10.
26. Vladimirov D, Niemelä S, Keinänen-Kiukaanniemi S, Ala-Mursula L, Auvinen J, Timonen M et al. Cloninger's Temperament Dimensions and Longitudinal Alcohol Use in Early Midlife: A Northern Finland Birth Cohort 1966 Study. Alcohol Clin Exp Res. 2018 Oct;42(10):1924-1932.
27. Bozkurt M, Evren C, Can Y, Evren B, Cetingok S, Yilmaz A. Relationships of personality dimensions with impulsivity in alcohol-dependent inpatient men. Nord J Psychiatry. 2014 Jul;68(5):316-22.
28. Milivojevic D, Milovanovic SD, Jovanovic M, Svrakic DM, Svrakic NM. Temperament and character modify risk of drug addiction and influence choice of drugs. Am J Addict. 2012 Sep-Oct;21(5):462-7.
29. Foulds J, Boden J, Horwood J, Mulder R. High novelty seeking as a predictor of antisocial behaviour in early adulthood. Personal Ment Health. 2017 Nov;11(4):256-265.
30. Gierski F, Benzerouf F, De Wever E, Duka T, Kaladjian A, Quaglini V et al. Cloninger's Temperament and Character Dimensions of Personality and Binge Drinking Among College Students. Alcohol Clin Exp Res. 2017 Nov;41(11):1970-1979.
31. Schneider R Jr, Ottoni GL, de Carvalho HW, Elisabetsky E, Lara DR. Temperament and character traits associated with the use of alcohol, cannabis, cocaine, benzodiazepines, and hallucinogens: evidence from a large Brazilian web survey. Braz J Psychiatry. 2015 Jan-Mar;37(1):31-9.